

REMARKS

With the entry of the foregoing amendments, claims 18-23 are now pending in the application. Claims 24-41 (as well as claims 1-17) have been cancelled without prejudice. Favorable consideration is requested.

Before discussing the objections and rejections stated in the Office Action, applicant notes that claims 18-23 have been amended to place them in more conventional U.S. patent claim format. In addition, claim 18 has been amended to note that the semiconductor substrate is chemically etched to form pores in the substrate, in line with the allowed claim in applicant's corresponding European application and to further distinguish the claimed invention of the cited art. Support for the claim 18 amendment is found in the specification and figures, e.g., page 4, lines 21-32 and page 5, lines 13-28. No new matter has been added by way of the claim amendments.

In response to the drawing objections in paragraphs 9-10 of the Office Action, the drawings have been amended to delete the shading and to insert the phrase "Prior Art" with Figure 1. These changes are in line with the Examiner's suggestions. No new matter has been added. Applicant submits that the amendments render the objections moot.

In response to the drawing objection in paragraph 11 of the Office Action, applicant requests the withdrawal of the objection because Figure 3 depicts the spin valve structure as claimed, and Figures 4A and 4B provide further details of the claimed spin valve. In addition, the specification has been amended to correct typographical errors that may have prompted the drawing objection.

In response to the specification and claim objections and rejections in paragraphs 12-17, applicant has amended the Abstract, specification and claims to address these formalistic matters

in line with the helpful comments and suggestions of the Examiner. No new matter has been added. Applicant submits that the amendments render the objections and rejections moot.

In response to the rejection of claims 18-23 under Section 102(b) as alleged anticipated by Fujiwara (US Pub. Pat. App. 2002/0054461) in paragraphs 19-27 of the Office Action, applicant respectfully requests the withdrawal of the rejection for at least the following reasons and in view of the amended claims.

The claimed invention requires and critically uses a porous substrate. Fujiwara does not. Fujiwara discloses a Current Parallel in Plane (CPP) type of spin valve, which includes a non-magnetic layer 33 composed of a mixture of metallic and insulating materials. As shown in Fujiwara's Figure 3b, layer 33 is obtained by a structure of nanotubes and nanowires. Contrary to the Examiner's suggestion, Fujiwara does not disclose or teach the use of a porous material. Instead, Fujiwara only mentions co-deposition techniques (paragraph 22) and the use of oxides of several different metals, e.g., aluminum. Moreover, aluminum oxide is not inherently porous, and nothing in Fujiwara discloses (or suggests) the use of the aluminum oxide or any other materials in porous form. Furthermore, Fujiwara's list of metals that includes aluminum and several other metals are not known for being used in porous form. Significantly, Fujiwara nowhere mentions pores or porous materials or even remotely recognizes or appreciates the importance of the claimed porous aspects of applicant's invention. Thus, Fujiwara does not disclose (or suggest) the claimed invention.

It is also noteworthy that applicant's claim 21 requires a matrix comprising a porous dielectric material comprising porous alumina or porous silicon – none of which is disclosed (or suggested) by Fujiwara.

As a result, applicant requests the withdrawal of the anticipation rejection based on Fujiwara.

In response to the rejection of claims 18-23 under Section 102(b) as alleged anticipated by Kumagai (USP 6103406) in paragraphs 28-37 of the Office Action, applicant respectfully requests the withdrawal of the rejection for at least the following reasons and in view of the amended claims.

As noted above, the claimed invention requires and critically uses a porous substrate. Kumagai does not. Kumagai discloses a magnetic tunnel device with a layered structure that includes a first magnetic layer, a layer of magnetic grains in an insulating matrix, and a second transducing magnetic layer made from a composite material including magnetic material in an insulating matrix. Kumagai does not disclose (or suggest) the use of a porous material, and certainly not the porous material claimed in applicant's claims, e.g., claims 18 and 21. The material shown in Figure 4 of Kumagai to which the Examiner refers is not a porous material. As explained above, the fact that aluminum oxide is mentioned in Kumagai or any other document does not imply the use of a porous material. As one skilled in the art knows, aluminum oxide is not inherently porous, and the other materials disclosed in the cited art are not known for being used in porous form. In fact, Kumagai nowhere mentions pores or porous materials or even remotely recognizes or appreciates the importance of the claimed porous aspects of applicant's invention. Thus, Kumagai does not disclose (or suggest) the claimed invention. As a result, applicant requests the withdrawal of the anticipation rejection based on Kumagai.

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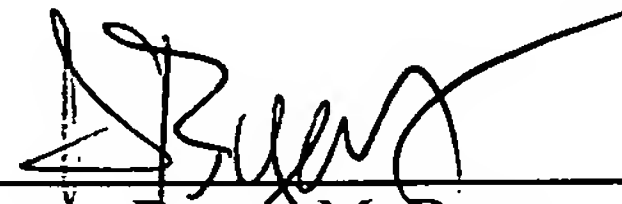
In view of the foregoing amendments and remarks, and the attached Replacement Sheets, applicant submits that the application is in condition for allowance and earnestly solicits a notice to that effect.

If the Examiner has any questions concerning this application, the undersigned may be contacted at 703-816-4009.

Respectfully submitted,

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By: _____



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